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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/806,261
Filing Date: March 22, 2004
Appellant(s): PRIDDY, KENNETH

Clifton L. Anderson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 12, 2008 appealing from the Office action mailed August 6, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Kelkar U.S. Patent 7,058,846

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-14 are rejected under 35 U.S.C. 102(b).

Detailed Action

Claims 1-14 have been presented for examination.

Claims 1-14 have been rejected.

NOTE: The Examiner made a remap of only one physical element of the recited independent claims. The remap is as follow:

Non volatile memory is remapped to item 140d instead of 140 the shared storage drive. Everything else stays the same as stated in the previous Office Actions. The Examiner maintains the same reference, on which the present rejection is based.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kelkar U.S. Patent 7,058,846.

In regard to claims 1 and 7

Kelkar discloses a computer cluster comprising:

- storage media; (Figure 1; item 140)
- a first computer having a first instance of an application program installed, said application program having instructions, (Figure 2; item 110A)

said first computer including,

- volatile memory; (Figure 1;item 104A)
- processing means (Figure 7; item 714) for executing instructions of said first instance of said application program so as to modify data stored in said volatile memory for creating a snapshot of said data while said first instance of said application program is running, (Column 4; lines 36-37) and (Column 4; lines 55-56)
- said snapshot being stored in said volatile memory, and for while said first instance of said application continues to modify said data so that it diverges from said snapshot transferring said snapshot from said volatile memory to said storage media (Figure 1; item 140D), (Column 4; lines 44-46)
- and a second computer having a second instance of said application program installed, (Figure 2; item 110b) said second computer including means for accessing said storage media so that said second instance of said application can access said snapshot as stored on said storage media (Figure 3 ; item 370B).

In regard to claim 2

A computer cluster as recited in Claim 1 wherein said processing means includes

a data processor (Figure 7; item 714)

for executing instructions of said first instance of said application program so as to modify data stored in said memory, and (Column 3; lines 36-37 “a clustering environment in which storage configuration changes can be made dynamically” [dynamic change entails modified stored data])for creating said snapshot of said data while said application program is running,(Column 3; line 43) said snapshot being stored in said volatile memory (Figure 1; item 140d), and a transfer processor for transferring said snapshot from said volatile memory to said storage media while said first instance of said first instance of said application program is running. (Figure 1; 104 a [This element is controlled by I/O controller 718])

In regard to claim 3,

Kelkar discloses a computer cluster, as recited in Claim 1 further comprising a first cluster daemon running on said first computer for causing said snapshot to be created. (Column 3; lines 39-40 “These operations include storage management services that allow configuration changes to be made dynamically” [Examiner considers management services as a daemon])

In regard to claim 4

Kelkar discloses a computer cluster as recited in Claim 1 further comprising a second cluster daemon running on said second computer, said second cluster daemon providing:

for detecting a failure that prevents said first instance of said application program from running on said first computer (Column 5; lines 26-28), and for causing, in response to said detecting a failure, said second computer to process said snapshot in accordance with instructions of said second instance of said application program. (Abstract; "If a node that has made a resource configuration fails, the resource configuration change is available for use by other nodes in the set, each of which can resume operations of the failed node")

In regard to claim 5

Kelkar discloses a computer cluster as recited in Claim 1 wherein said processing means provides for, in response to a write access of a section of said volatile memory in accordance with instructions of said first instance of said application program, copying data in that section so that one instance of said data originally in that section is modified and the other copy of data originally in that section is not modified. (Column 3; line 41 [Kelkar discloses changes are made dynamically to storage resources this that while the write process is made to the memory by the processor only the new data involved in the transaction is made available to the storage because it is dynamic])

In regard to claims 6 and 12

Kelkar discloses a computer cluster as recited in Claim 2 wherein said data processing means maintains state data, said snapshot data including at least some of said state data. (Column 3; line 44)

In regard to claim 8

Kelkar discloses a method as recited in Claim 7 further comprising executing a second instance of said application program on a second computer of said computer cluster using said snapshot as a starting state. (Abstract; "If a node that has made a resource configuration fails, the resource configuration change is available for use by other nodes in the set, each of which can resume operations of the failed node")

In regard to claim 9

Kelkar discloses a method as recited in Claim 8 further comprising detecting a failure that prevents execution of said first instance of said application program, said detecting occurring after said transferring and before said executing a second instance. (Column 5; lines 26-28)

In regard to claim 10

Kelkar discloses a method as recited in Claim 8 wherein said executing a second instance follows said transferring without an intervening detection of a failure. (Column 4; lines 53-56 "To make resources configuration available to another node that can resume operation of node 110a **upon failure**, the invention synchronizes resources configuration data")

In regard to claim 11

Kelkar discloses a method as recited in Claim 7 wherein said transferring is effected by a data transfer processor not used in executing said first instance of said application. (Figure 3; items 330a and 330b)

(10) Response to Argument

Appellant's arguments with respect to claims 1-12 have been considered but are not persuasive. Please refer to the above section (9) Ground of Rejection for details.

Group 1

In regard the first arguments which states "Final Action fails to establish that Kelkar discloses the claim limitation of creating a snapshot of application data in volatile memory, the rejection for anticipation of claim 1 by Kelkar should be reversed", "Final Action fails to establish that Kelkar discloses the claim 1 limitation of storing a snapshot in volatile memory", and "Final Action fails to establish that Kelkar discloses the claim 1 limitation of transferring a snapshot from volatile memory to storage media".

Examiner respectfully disagrees. Examiner points Appellant into two parts of the reference. First, figure 1, this figure shows 3 elements 104A, 102A, and 140D all in connection with storage resource 140. The same figure shows 4 steps 1.1, 1.2, 1.3, 1.4, with transitional arrows as depicted in the figure. Following the description of figure 1 as disclosed in (Column 3), Examiner concludes that **node 110A** receives update of storage resource configuration at step 1.1 at element 104A, the update passes through step 1.2 from element 104a to element 102A, it then finally settles in item 140D by using step 1.3. During this transition it is well apparent that the itinerary of the update goes from volatile memory 104A to non volatile memory 140D, and that is how Kelkar meets the limitation of volatile, and non-volatile memory. Second, In regard the creation of a snapshot, Kelkar discloses (in Column 4 lines 49-55 and Column 3 lines 33-36), to avoid the problem of accessing resource configuration when node 110A fails, Kelkar synchronizes resource configuration data on multiple nodes, this means while the updates take place Kelkar's system is working in real time or near real time to make sure that all the updates received at **node 110A** level are copied and synchronized along the other nodes. The fact that Kelkar works in real time shows that Kelkar transfers the snapshots while Kelkar is still updating node 110A. The arguments are not correct.

Group 2

In regard the argument which states “Since the Final Action has failed to establish that Kelkar discloses the claimed combination of a data processor and a transfer processor, the rejection for anticipation of claim 2 should be reversed”

Examiner respectfully disagrees. A closer look at figure 7 shows a computer system with which Kelkar' s invention is implemented. The figure also shows two important elements, 714 Central Processor, and 718 I/O Controller. These are two different circuitries, the first one processes the data that needs instruction processing , and the second one monitors and transfers data already processed by the first one. It is clear, in contrary to what the Appellant advances, Kelkar discloses two different processors one for regular processing, and the other one for data transfer. The argument is invalid

Group 3

In regard the argument which states "the Final Action has failed to establish that Kelkar discloses the claim 8 limitation of using a snapshot as starting state of a second instance of an application program." Examiner respectfully disagrees.

Examiner respectfully directs Appellant to (Column 6; lines 31-33) where Kelkar discloses “When a node fails and node 110B **<u>resumes</u>** operations previously performed on the failed node” Resuming entails, picking up right from the point where the process was left. The pick up will not be feasible unless a copy of the resource configuration updated is contained in node 110B, and a process synchronization is available. The argument is not valid.

Group 5

In regard the argument which states "the Final Action has failed to establish that Kelkar discloses the claim 10 limitation of executing a second instance of an application program without detection of an intervening failure."

Examiner respectfully disagrees. This time Examiner points Appellant to (Column 5; lines 34-38) and (Column 5; lines 52-55). These passages, establish that regardless whether a failure exists or not, Kelkar updates' are dynamically processed and shared through the cluster. Argument is not valid.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted

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